

Appln. No. 10/648,896
Amendment
Response to Office Action dated December 3, 2004

Docket No. 304-813

REMARKS

The foregoing amendments and these remarks are in response to the Final Office Action dated December 3, 2004. This amendment is timely filed within two months of the date of issuance of the Final Office Action.

At the time of the Office Action, claims 1-11 and 14-21 were pending. In the Office Action, an objection was raised to claim 18. Claims 1-11, 14-18 and 19-21 were rejected under 35 U.S.C. §103(a). The objections and rejections are discussed in more detail below.

I. Claim Objections

Claim 18 was objected to for reciting the limitation "said heating element" which was asserted to lack sufficient antecedent basis. Claim 18 is amended herein, and withdrawal of the objection is thus respectfully requested.

II. Rejections to the claims based upon Art

Claims 1-11, 14-16 and 19-21 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,390,673 to Camburn ("Camburn") in view of U.S. Patent No. 4,747,700 to Lenz et al. ("Lenz"). Claims 17 and 18 were rejected under 35 U.S.C. §103(a) as being unpatentable over Camburn in view of Lenz as applied to claims 1-11, 14-16 and 19-21, and further in view of U.S. Patent No. 5,342,498 to Graves et al. Applicant respectfully traverses this rejection.

Applicant notes that Camburn discloses that in a hot gas duct a thermowell tube can be mounted with a thermocouple for measuring the temperature of hot gas in the duct. As can be seen from figures 2 and 5, the thermocouple 54 is positioned inside the thermowell tube 25 and as such is positioned inside the duct and not outside, as required by claim 1 of the present application. This can also be understood from column 2, lines 56 to 59 and lines 64 to column 3, line 13. When closely examining figure 5, it can be seen that there is a stiffener 36 at the same place as the thermocouple 54. From figure 2 again can be seen that the stiffener 36 is only fixed to the thermowell tube inside the duct. As such the thermocouple 54 is located only inside the duct and

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not outside. Furthermore, it is described in Camburn that the stiffener 36 has the aim of preventing damage to the thermocouple 55 when bending the thermowell tube 25 by the hot gas.

Furthermore, claim 1 of the present application defines that there are several elongated probe sections connected to a base member. The prior art in form of Camburn clearly does not disclose several probe sections but only the thermowell tube 22.

The Office Action compares the thermocouple signal sensor 34 of Camburn with the temperature sensor of the present application. However, as can be understood from column 2, lines 46 to 49 of Camburn, the signal sensor 34 contains connections to measure signals from the thermocouple positioned inside the thermowell tube. As such, the object of the present application to be able to avoid any temperature sensor inside a channel or duct cannot be achieved Camburn. Furthermore, Camburn still points to a technical solution where the thermocouple is inside the duct and that thermocouple is the temperature sensor that our application claims.

Furthermore, a person having ordinary skill in the art would not be taught by Camburn to position the thermocouple outside the duct, for example near the thermocouple signal sensor 34. A hollow pipe like the thermowell tube is not suited for conducting heat from inside the duct to a temperature sensor located outside. Thus, a person of ordinary skill in the art would not simply replace the thermocouple as the temperature sensor from inside the tube to a location outside the tube. This is clearly not obvious, and not taught or suggested by Camburn. It would also not have been obvious to dislocate the temperature sensor and then change the thermowell tube to a solid rod or the like for conducting heat.

The prior art of Lenz clearly discloses in figure 4 and column 3, line 63 to column 4, line 46, that the thermocouples 54 is made up of metal wires 56 are located in the tip 50 of thermocouple assembly 44. This tip 50 is placed into a heated fluid. That means that the temperature sensor is placed inside the duct, contrary to the temperature sensor defined in claim 1.

The Office Action regards the meter or other device 76 as a temperature sensor, but Applicant respectfully disagrees with this interpretation, at least in view of the meaning of a temperature sensor in the context of the present application. In column 4, lines 40 to 46 of Lenz it is clearly described that meter 76 is located remotely and also converts voltage into a temperature reading. This is more similar to a processing unit but not a temperature sensor like, for example,

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the thermocouple 54. Furthermore, it cannot be said that meter 76 is in any heat conducting connection with body 12 as it is clearly only connected via electric lines or cables. Such an electrical connection is typically not a heat conducting connection. From figure 1 it can be seen that there is quite some distance between meter 76 and body 12.

Therefore, it can be easily seen that both Camburn and Lenz only disclose devices with the temperature sensor being placed inside the duct for hot fluids. Neither document discloses the invention defined in independent claims 1 and 19, both of which require that the temperature sensor is placed outside the duct. Furthermore, neither document, either singly or in combination, teaches or suggests to a person of ordinary in the art to rearrange a device for temperature measurement to arrive at the device recited in claims and 19.


As the independent claims are believed patentable, the dependent claims are also believed patentable, based on their dependence upon allowable base claims, and because of the further features recited.

III. Conclusion

Applicant has made every effort to present claims which distinguish over the prior art, and it is thus believed that all claims are in condition for allowance. Nevertheless, Applicant invites the Examiner to call the undersigned if it is believed that a telephonic interview would expedite the prosecution of the application to an allowance. In view of the foregoing remarks, Applicant respectfully requests reconsideration and prompt allowance of the pending claims.

Respectfully submitted,

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